of this title, and section 1124a of this title, an amount— $\,$

- (1) for fiscal year 1991, not to exceed \$44,398,000; (2) for fiscal year 1992, not to exceed
- \$46,014,000;
 (3) for fiscal year 1993, not to exceed
- \$47,695,000; (4) for fiscal year 1994, not to exceed
- (4) for fiscal year 1994, not to exceed \$49,443,000; and
- (5) for fiscal year 1995, not to exceed \$51,261,000.

(b) Administration

- (1) There is authorized to be appropriated for administration of this subchapter, including section 1128 of this title, by the National Sea Grant Office and the Administration, an amount—
 - (A) for fiscal year 1991, not to exceed \$2,500,000;
 - (B) for fiscal year 1992, not to exceed \$2,600,000;
 - (C) for fiscal year 1993, not to exceed \$2,700,000;
 - (D) for fiscal year 1994, not to exceed \$2,800,000; and
 - (E) for fiscal year 1995, not to exceed \$2,900,000.
- (2) Sums appropriated under the authority of subsections (a) and (c) of this section shall not be available for administration of this subchapter by the National Sea Grant Office, or for Administration program or administrative expenses.

(c) Priority oyster disease research

In addition to sums authorized under subsection (a) of this section, there is authorized to be appropriated for priority oyster disease research under section 1124 of this title, an amount—

- (1) for fiscal year 1992, not to exceed \$1,400,000;
- (2) for fiscal year 1993, not to exceed \$3,000,000;
- (3) for fiscal year 1994, not to exceed \$3,000,000; and
- (4) for fiscal year 1995, not to exceed \$3,000,000.

(d) Availability of sums

Sums appropriated pursuant to this section shall remain available until expended.

(e) Reversion of unobligated amounts

The amount of any grant, or portion of a grant, made to a person under any section of this subchapter that is not obligated by that person during the first fiscal year for which it was authorized to be obligated or during the next fiscal year thereafter shall revert to the Secretary. The Secretary shall add that reverted amount to the funds available for grants under the section for which the reverted amount was originally made available.

(Pub. L. 89-454, title II, §212, as added Pub. L. 94-461, §2, Oct. 8, 1976, 90 Stat. 1968; amended Pub. L. 95-58, §1, June 29, 1977, 91 Stat. 254; Pub. L. 95-428, §3(5), Oct. 7, 1978, 92 Stat. 1000; Pub. L. 96-289, §1(6), June 28, 1980, 94 Stat. 605; Pub. L. 98-623, title V, §501(a), Nov. 8, 1984, 98 Stat. 3410;

Pub. L. 100–220, title III, §3110, Dec. 29, 1987, 101 Stat. 1474; Pub. L. 102–186, §3, Dec. 4, 1991, 105 Stat. 1282.)

References in Text

This subchapter, referred to in subsecs. (b) and (e), was in the original "this Act" and was translated as reading "this title" meaning title II of Pub. L. 89–454, which enacted this subchapter, to reflect the probable intent of Congress.

AMENDMENTS

1991—Subsecs. (a) to (c). Pub. L. 102–186 amended subsecs. (a) to (c) generally. Prior to amendment, subsecs. (a) to (c) read as follows:

- "(a) There is authorized to be appropriated to carry out the provisions of this subchapter other than sections 1125 and 1130 of this title, an amount—
 - "(1) for fiscal year 1988, not to exceed \$41,500,000;
 - (2) for fiscal year 1989, not to exceed \$50,500,000; and
 - "(3) for fiscal year 1990, not to exceed \$51,000,000.
- "(b) There is authorized to be appropriated to carry out section 1125 of this title and section 1127(c) of this title, an amount—
 - "(1) for fiscal year 1988, not to exceed \$500,000;
 - "(2) for fiscal year 1989, not to exceed \$5,000,000; and
- "(3) for fiscal year 1990, not to exceed \$10,000,000.
- "(c) There is authorized to be appropriated to carry out section 1130 of this title, an amount—
 - "(1) for fiscal year 1988, not to exceed \$2,000,000;
 - "(2) for fiscal year 1989, not to exceed \$2,500,000; and
 - "(3) for fiscal year 1990, not to exceed \$3,000,000."

1987—Pub. L. 100–220 amended section generally, substituting provisions of subsecs. (a) to (e) relating to appropriations authorizations for fiscal years 1988, 1989, and 1990, for provisions formerly contained in a single unlettered paragraph relating to appropriations authorizations for fiscal years 1978 to 1983 and 1985 to 1987.

- 1984—Par. (4). Pub. L. 98–623 added par. (4).
- 1980—Par. (3). Pub. L. 96-289 added par. (3).
- 1978—Pub. L. 95–428 substituted appropriations authorization of \$50,000,000 for fiscal years 1977, and 1978, for prior \$50,000,000 authorization for fiscal years ending Sept. 30, 1977, and 1978, and authorized appropriation of \$55,000,000 for fiscal years 1979 and 1980.

1977—Pub. L. 95-58 substituted "each of the fiscal years ending September 30, 1977, and September 30, 1978" for "the fiscal year ending September 30, 1977".

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 1124 of this title.

CHAPTER 23—POLLUTION CONTROL OF NAVIGABLE WATERS

§§ 1151 to 1165. Omitted

CODIFICATION

Sections 1151 to 1165 of this title were omitted as superseded by Pub. L. 92–500, §2, Oct. 18, 1972, 88 Stat. 816. See section 1251 et seq. of this title.

Section 1151, acts June 30, 1948, ch. 758, \S 1, 62 Stat. 1155; July 9, 1956, ch. 518, \S 1, 70 Stat. 498; July 20, 1961, Pub. L. 87–88, \S 1(a), 75 Stat. 204; Oct. 2, 1965, Pub. L. 89–234, \S 1(a), 79 Stat. 903; 1966 Reorg. Plan No. 2, \S 1(a), (e)(1), 5, eff. May 10, 1966, 31 F.R. 6857, 80 Stat. 1608; 1970 Reorg. Plan No. 3, \S 2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to Congressional declaration of policy in controlling water pollution.

Section 1152, act June 30, 1948, ch. 758, §2, as added Oct. 2, 1965, Pub. L. 89–234, §2(a), 79 Stat. 903; amended 1966 Reorg. Plan No. 2, §1(a), (b), eff. May 10, 1966, 31 F.R. 6857, 80 Stat. 1608; Apr. 3, 1970, Pub. L. 91–224, title I, §110(a), 84 Stat. 113, created within the Department of the Interior a Federal Water Quality Administration. Reorg. Plan No. 3 of 1970, §§1, 2(a)(1), 6(a)(1), eff.

Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2086, 2087, 2089, created Environmental Protection Agency, abolished Federal Water Quality Administration in Department of the Interior, and transferred to Administrator of Environmental Protection Agency all functions vested by law in Secretary of the Interior and Department of the Interior which had been administered through Federal Water Quality Administration.

Section 1153, acts June 30, 1948, ch. 758, §3, formerly §2, 62 Stat. 1155; July 9, 1956, ch. 518, §1, 70 Stat. 498; July 20, 1961, Pub. L. 87–88, §§1(b), 2, 75 Stat. 204; renumbered Oct. 2, 1965, Pub. L. 89–334, §2(a), 79 Stat. 903; amended Nov. 3, 1966, Pub. L. 89–753, title I, §101, 80 Stat. 1246; 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2086, related to preparation and development of comprehensive water pollution programs.

Section 1154, acts June 30, 1948, ch. 758, §4, formerly §3, 62 Stat. 1157; July 9, 1956, ch. 518, §1, 70 Stat. 498; July 20, 1961, Pub. L. 87–88, §1(b), 75 Stat. 204; renumbered Oct. 2, 1965, Pub. L. 89–234, §2(a), 79 Stat. 903; 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2086, related to interstate cooperation for prevention and control of water pollution.

Section 1155, acts June 30, 1948, ch. 758, §5, formerly §4, 62 Stat. 1158; July 9, 1956, ch. 518, §1, 70 Stat. 499; July 20, 1961, Pub. L. 87–88, §§1(b), (c), 3, 75 Stat. 204, 205; renumbered Oct. 2, 1965, Pub. L. 89–234, §2(a), 79 Stat. 903; amended 1966 Reorg. Plan No. 2, §1(a), eff. May 10, 1966, 31 F.R. 6857, 80 Stat. 1608; Nov. 3, 1966, Pub. L. 89–753, title II, §201(b), (c)(1), 80 Stat. 1247; Apr. 3, 1970, Pub. L. 91–224, title I, §105, 84 Stat. 111; 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2086; Oct. 13, 1971, Pub. L. 92–137, §1, 85 Stat. 379; Mar. 1, 1972, Pub. L. 92–240, §1, 86 Stat. 47, related to research, investigations, experiments, demonstrations, and studies in prevention and control of water pollution

Section 1156, act June 30, 1948, ch. 758, §6, as added Oct. 2, 1965, Pub. L. 89–234, §3, 79 Stat. 905; amended Nov. 3, 1966, Pub. L. 89–753, title II, §201(a), 80 Stat. 1246; Apr. 3, 1970, Pub. L. 91–224, title I, §106, 84 Stat. 113; 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to grants for research and development of methods to prevent and control water pollution

Section 1157, acts June 30, 1948, ch. 758, § 7, formerly § 5, 62 Stat. 1158; July 9, 1956, ch. 518, § 1, 70 Stat. 499; June 25, 1959, Pub. L. 86–70, § 28(a), 73 Stat. 148; July 12, 1960, Pub. L. 86–624, § 23(a), 74 Stat. 417; July 20, 1961, Pub. L. 87–88, § § 1(b), 4(a), (b), 75 Stat. 204, 205; renumbered and amended Oct. 2, 1965, Pub. L. 89–234, § § 2(a), 7(a), 79 Stat. 903, 910; Nov. 3, 1966, Pub. L. 89–753, title II, § 202, 80 Stat. 1248; 1970 Reorg. Plan No. 3, § 2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2086; July 9, 1971, Pub. L. 92–50, § 2, 85 Stat. 124; Oct. 13, 1971, Pub. L. 92–137, § 3, 85 Stat. 379; Mar. 1, 1972, Pub. L. 92–240, § 2, 86 Stat. 47, related to grants for water pollution control programs.

Section 1158, acts June 30, 1948, ch. 758, §8, formerly §6, 62 Stat. 1158; July 9, 1956, ch. 518, §1, 70 Stat. 502; July 20, 1961, Pub. L. 87–88, §§1(b), 5, 75 Stat. 204, 206; renumbered and amended Oct. 2, 1965, Pub. L. 89–234, §§2(a), 4, 7(b), 79 Stat. 903, 906, 910; Nov. 3, 1966, Pub. L. 89–753, title II, §§203(a), 204, 205, 80 Stat. 1248–1250; Apr. 3, 1970, Pub. L. 91–224, title I, §111, 84 Stat. 113; 1970 Reorg. Plan No. 2, §§102, 103, eff. July 1, 1970, 35 F.R. 7959, 84 Stat. 2085; 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 15 F.R. 15623, 84 Stat. 2087; July 9, 1971, Pub. L. 92–50, §3, 85 Stat. 124; Oct. 13, 1971, Pub. L. 92–137, §4, 85 Stat. 379; Mar. 1, 1972, Pub. L. 92–240, §3, 86 Stat. 48, related to grants for construction of sewerage treatment works.

Section 1159, acts June 30, 1948, ch. 758, §9, formerly §7, 62 Stat. 1159; July 17, 1952, ch. 927, 66 Stat. 755; July 9, 1956, ch. 518, §1, 70 Stat. 503; July 20, 1961, Pub. L. 87–88, §§1(b)–(d), 6(a), (b), 75 Stat. 204, 207; renumbered Oct. 2, 1965, Pub. L. 89–234, §2(a), 79 Stat. 903; amended 1966 Reorg. Plan No. 2, §1(a), (c)(1), (2), eff. May 10, 1966, 31 F.R. 6857, 80 Stat. 1608; 1970 Reorg. Plan No. 3,

§2(a)(1), (b)(1)(i), eff. Dec. 3, 1970, 35 F.R. 15623, 84 Stat. 2087, related to establishment, composition, and duties of the Water Pollution Control Advisory Board.

Section 1160, acts June 30, 1948, ch. 758, §10, formerly §8, 62 Stat. 1159; July 17, 1952, ch. 927, 66 Stat. 755; July 9, 1956, ch. 518, §1, 70 Stat. 504; July 20, 1961, Pub. L. 87–88, §§1(b), 7, 75 Stat. 204, 207; renumbered and amended Oct. 2, 1965, Pub. L. 89–234, §\$2(a), 5, 7(c), (d), 79 Stat. 903, 907, 910; 1966 Reorg. Plan No. 2, §1(a), (d)(1), (2), eff. May 10, 1966, 31 F.R. 6857, 80 Stat. 1608; Nov. 3, 1966, Pub. L. 89–753, title II, §\$206–208, 80 Stat. 1250; Apr. 3, 1970, Pub. L. 91–224, title I, §112, 84 Stat. 114; 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to enforcement measures against pollution of interstate or navigable waters.

Section 1161, act June 30, 1948, ch. 758, §11, as added Apr. 3, 1970, Pub. L. 91–224, title I, §102, 84 Stat. 91; amended 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, Dec. 31, 1970, Pub. L. 91–611, title I, §120 84 Stat. 1823, related to control of pollution by oil.

Section 1162, act June 30, 1948, ch. 758, §12, as added Apr. 3, 1970, Pub. L. 91–224, title I, §102, 84 Stat. 98, related to control of pollution by hazardous substances.

Section 1163, act June 30, 1948, ch. 758, §13, as added Apr. 3, 1970, Pub. L. 91–224, title I, §102, 84 Stat. 100; amended 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to control of sewage from vessels.

Section 1164, act June 30, 1948, ch. 758, §14, as added Apr. 3, 1970, Pub. L. 91–224, title I, §102, 84 Stat. 103; amended 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to acid and other mine water pollution elimination or control projects.

Section 1165, act June 30, 1948, ch. 758, §15, as added Apr. 3, 1970, Pub. L. 91–224, title I, §102, 84 Stat. 104; amended 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to Great Lakes pollution elimination or control projects.

§ 1165a. Transferred

CODIFICATION

Section transferred to section 1293a of this title.

§§ 1166 to 1175. Omitted

CODIFICATION

Sections 1166 to 1175 of this title were omitted as superseded by Pub. L. 92-500, §2, Oct. 18, 1972, 88 Stat. 816. See section 1251 et seq. of this title.

Section 1166, act June 30, 1948, ch. 758, §16, as added Apr. 3, 1970, Pub. L. 91–224, title I, §102, 84 Stat. 104; amended 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to training grants to and contracts with institutions of higher education for water quality control programs or projects.

Section 1167, act June 30, 1948, ch. 758, §17, as added Apr. 3, 1970, Pub. L. 91–224, title I, §102, 84 Stat. 105; amended 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 3, 1970, 35 F.R. 15623, 84 Stat. 2087, related to applications for training grants or contracts.

A prior section 17 of act June 30, 1948, formerly classified to section 466m of this title, was repealed by Pub. L. 91–224, title 1, §102, Apr. 3, 1970, 84 Stat. 91, in the general reorganization of act June 30, 1948 by Pub. L. 91–294

Section 1168, act June 30, 1948, ch. 758, §18, as added Apr. 3, 1970, Pub. L. 91–224, title I, §102, 84 Stat. 105; amended 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to awarding of scholarships for undergraduate study of operation and maintenance of treatment works.

A prior section 18 of act June 30, 1948, formerly classified to section 466n of this title, was repealed by Pub. L. 91–224, title I, §102, Apr. 3, 1970, 84 Stat. 91, in the general reorganization of act June 30, 1948 by Pub. L. 91–224.

Section 1169, act June 30, 1948, ch. 758, §19, as added Apr. 3, 1970, Pub. L. 91–224, title I, §102, 84 Stat. 106; amended 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to an annual report by the Administrator of the Environmental Protection Agency, appropriations for certain fiscal years, and defined certain terms as used in this chapter.

Section 1170, act June 30, 1948, ch. 758, $\S20$, as added Apr. 3, 1970, Pub. L. 91–224, title I, $\S102$, 84 Stat. 107; amended 1970 Reorg. Plan No. 3, $\S2(a)(1)$, eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to Alaska village safe water and pollution elimination or control projects.

Section 1171, act June 30, 1948, ch. 758, § 21, formerly § 9, 62 Stat. 1160; July 9, 1956, ch. 518, § 1, 70 Stat. 506; July 20, 1961. Pub. L. 87–88, § 8, 75 Stat. 210; renumbered § 11 and amended Oct. 2, 1965, Pub. L. 89–234, § § 2(a), 7(e), 79 Stat. 903, 910; 1966 Reorg. Plan No. 2, § 1(a), eff. May 10, 1966, 31 F.R. 6857, 80 Stat. 1608; renumbered § 21 and amended Apr. 3, 1970, Pub. L. 91–224, title I, § 102, 103, 84 Stat. 91, 107; 1970 Reorg. Plan No. 3, § 2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to cooperation by all Federal agencies in pollution control. Section 1172, act June 30, 1948, ch. 758, § 22, formerly

Section 1172, act June 30, 1948, ch. 758, §22, formerly §10, 62 Stat. 1160; July 9, 1956, ch. 518, §1 70 Stat. 506; July 20, 1961, Pub. L. 87–88, §1(b), (d), (e), 75 Stat. 204; renumbered §12 and amended Oct. 2, 1965, Pub. L. 89–234, §§2(a), 6, 79 Stat. 903, 909; 1966 Reorg. Plan No. 2, §1(a), eff. May 10, 1966, 31 F.R. 6857, 80 Stat. 1608; renumbered §22 and amended Apr. 3, 1970, Pub. L. 91–224, title I, §§102, 104, 84 Stat. 91, 110; 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to administration of water pollution control program under this chapter.

Section 1173, act June 30, 1948, ch. 758, §23, formerly §11, 62 Stat. 1161; July 9, 1956, ch. 518, §1, 70 Stat. 506; June 25, 1959, Pub. L. 86–70, §28(b), 73 Stat. 148; July 12, 1960, Pub. L. 86–624, §23(b), 74 Stat. 418; July 20, 1961, Pub. L. 87–88, §9, 75 Stat. 210; renumbered §13, Oct. 2, 1965, Pub. L. 89–234, §2(a), 79 Stat. 903; amended Nov. 3, 1966, Pub. L. 89–753, title II, §209, 80 Stat. 1251; renumbered §23, Apr. 3, 1970, Pub. L. 91–224, title I, §102, 84 Stat. 91, related to definitions of terms used in this chapter.

Section 1174, act June 30, 1948, ch. 758, §24, formerly §12, as added July 9, 1956, ch. 518, §1, 70 Stat. 506; renumbered §14, Oct. 2, 1965, Pub. L. 89–234, §2(a), 79 Stat. 903; renumbered §24 and amended Apr. 3, 1970, Pub. L. 91–224, §§102, 107, 84 Stat. 91, 113, related to application of this chapter to other laws.

Section 1175, act June 30, 1948, ch. 758, §26, formerly §16, as added Nov. 3, 1966, Pub. L. 89–753, title II, §210, 80 Stat. 1252; renumbered Apr. 3, 1970, Pub. L. 91–224, title I, §102, 84 Stat. 91; amended 1970 Reorg. Plan No. 3, §2(a)(1), eff. Dec. 2, 1970, 35 F.R. 15623, 84 Stat. 2087, related to cost estimates, studies, and analysis by the Administrator of Environmental Protection Agency.

CHAPTER 24—VESSEL BRIDGE-TO-BRIDGE COMMUNICATION

1201 Statement of purpose. 1202 Definitions. Radiotelephone requirement. (a) Vessel coverage; exchange of navigational information. (b) Vessels upon navigable waters of United States inside high seas lines. 1204. Radiotelephone for exclusive use of master, person in charge, or pilot; frequency listening watch; portable radiotelephone equipment. 1205. Radiotelephone capability; maintenance; restoration; consequences of loss: navigation of vessel. 1206 Exemptions; terms and conditions. 1207. Regulations.

(a) Operating and technical conditions and characteristics; frequencies, emission, and power of radiotelephone equipment. (b) Enforcement.

1208. Penalties.

- (a) Master, person in charge, or pilot subject to penalty.
- (b) Vessel subject to penalty; jurisdiction.
- (c) Remission or mitigation.

CHAPTER REFERRED TO IN OTHER SECTIONS

This chapter is referred to in section 2034 of this title.

§ 1201. Statement of purpose

It is the purpose of this chapter to provide a positive means whereby the operators of approaching vessels can communicate their intentions to one another through voice radio, located convenient to the operator's navigation station. To effectively accomplish this, there is need for a specific frequency or frequencies dedicated to the exchange of navigational information, on navigable waters of the United States.

(Pub. L. 92-63, §2, Aug. 4, 1971, 85 Stat. 164.)

SHORT TITLE

Section 1 of Pub. L. 92-63 provided: "That this Act [enacting this chapter] may be cited as the 'Vessel Bridge-to-Bridge Radiotelephone Act'."

EFFECTIVE DATE

Section 10 of Pub. L. 92-63 provided that: "This Act [enacting this chapter] shall become effective May 1, 1971, or six months after the promulgation of regulations which would implement its provisions, whichever is later." See 47 CFR 83.701 et seq.

§ 1202. Definitions

For the purpose of this chapter—

- (1) "Secretary" means the Secretary of the Department in which the Coast Guard is operating;
- (2) "power-driven vessel" means any vessel propelled by machinery; and
- (3) "towing vessel" means any commercial vessel engaged in towing another vessel astern, alongside, or by pushing ahead.

(Pub. L. 92–63, §3, Aug. 4, 1971, 85 Stat. 164.)

ters or over in length while navigating;

§ 1203. Radiotelephone requirement

(a) Vessel coverage; exchange of navigational information

Except as provided in section 1206 of this

- tle—
 (1) every power-driven vessel of twenty me-
- (2) every vessel of one hundred gross tons and upward carrying one or more passengers for hire while navigating;
- (3) every towing vessel of twenty-six feet or over in length while navigating; and
- (4) every dredge and floating plant engaged in or near a channel or fairway in operations likely to restrict or affect navigation of other vessels—

shall have a radiotelephone capable of operation from its navigational bridge or, in the case of a dredge, from its main control station and capable of transmitting and receiving on the frequency or frequencies within the 156–162 Mega-Hertz band using the classes of emissions des-